



DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
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IN REPLY REFER TO

NAVAIRINST 13030.2
AIR-4.1

26 Mar 01

NAVAIR INSTRUCTION 13030.2

From: Commander, Naval Air Systems Command

Subj: TAILORED APPLICATION OF AIRWORTHINESS STANDARDS FOR SPECIAL
PURPOSE CONFIGURATIONS OF AIRCRAFT AND WEAPONS SYSTEMS

Ref: (a) OPNAVINST 3710.7R
(b) NAVAIRINST 13034.1B
(c) NAVAIRINST 3960.4A

1. Purpose. To promulgate policy and guidance which permits consideration for tailored application of airworthiness standards for flight test of special purpose configurations of Navy aircraft and weapons systems. For the purposes of this instruction, a special purpose configuration is defined as any equipment, system, or aircraft not intended for fleet introduction, but intended for limited operation in a controlled Test and Evaluation (T&E) environment. This instruction authorizes engineering analysis of flight safety risk and potential risk mitigation factors to accommodate test configurations not fully compliant with established airworthiness standards.

2. Scope. This instruction applies to all personnel and agencies of the Naval Aviation Systems TEAM (TEAM) involved in acquisition and/or T&E of aviation weapon systems and equipment.

3. Background. Reference (a) requires that a flight clearance be issued by the Naval Air Systems Command (NAVAIR) for all naval aircraft with non-standard configurations or that require flight outside approved envelopes. The flight clearance policy and process is described and governed by reference (b), and integrated into flight test as described in reference (c). The flight clearance is evidence that an independent engineering assessment of airworthiness was performed, and the assessment indicates the aviation system can be operated with an acceptable level of technical risk. The process authorized by this instruction may only be employed during the independent engineering assessment conducted for the purpose of issuing flight clearances for special purpose configurations operated in the T&E environment. NAVAIR airworthiness standards are intended for all naval aviation systems, without consideration for limited-use and/or special purpose configurations. The rigid application of all NAVAIR airworthiness standards sometimes forces the rework or re-engineering of Science and Technology (S&T) program prototypes or systems containing Commercial Off-The-Shelf (COTS) components. This rework is not always practicable within the cost/schedule constraints of a program.

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4. Discussion

a. Tailored application of airworthiness standards, based on an engineering assessment of risk, may be desired to accommodate the flight test of special purpose configurations. Determination of airworthiness is an engineering function and responsibility. Flight safety in the T&E environment is a function of design performance, flight test envelope, test operator experience, test environment, special inspection criteria, and time operated. These factors contribute to the engineering assessment of risk as well as potential deviations from established standards.

b. As a result of acquisition reform, non-traditional vendors, who may not know or understand airworthiness standards, sometimes provide equipment for use in naval aircraft. This often involves COTS equipment and systems provided to the Navy for assessment and test.

c. A special purpose configuration is defined as any equipment, system, or aircraft not intended for fleet introduction, but intended for limited operation in a controlled T&E environment. Examples of special purpose configurations include COTS-based or prototype equipment and systems undergoing flight test such as S&T projects, prototype or non-Navy configurations as may be experienced within the context of Advanced Concept Technology Demonstrations (ACTD), and Small Business Innovative Research (SBIR) programs. Prototypes of Engineering Change Proposals (ECP) and other hardware changes intended to become the subject of Technical Directives (TD) are not considered special purpose configurations.

5. Policy

a. This instruction authorizes tailored application of competency airworthiness standards to support special purpose configurations of aircraft or weapons systems. Tailored application of airworthiness standards may be employed for special purpose configurations during the flight clearance process, when based on an engineering assessment of risk. This instruction only provides the authority to consider and implement tailoring for specific applications and shall not be construed as requiring deviations from standard practices if the engineering assessment indicates otherwise.

b. There may be instances wherein an Integrated Program Team (IPT) desires that a special purpose configuration which does not meet fleet release airworthiness requirements, be flight-tested. For these configurations, the Research and Engineering Competencies, in coordination with the IPT, shall assess the context of the proposed T&E environment and consider not only the inherent design performance, but also the attendant airworthiness risk mitigation factors. Mitigating factors could include, but are not limited to:

- (1) specialized operator experience;
- (2) anticipated flight maneuvers;
- (3) flight envelope restrictions;

- (4) operating time limits;
- (5) special inspections; and
- (6) flight environment conditions.

Engineering analysis shall determine mitigation factors (such as usage and environmental limitations) to achieve an acceptable level of risk, and an airworthy test configuration. The risk considerations associated with the non-compliant design/hardware shall be documented in the flight test procedures and/or test plan, as well as in pertinent configuration management documentation. The intent is to raise the level of awareness of how the applications of airworthiness standards were tailored, and what factors were considered in the risk mitigation.

c. IPTs shall ensure that airworthiness standards are considered during formulation of each program, and that they are addressed in program planning as well as in contractual requirements. Contractual requirements need to include airworthiness in the definition of system performance requirements and provide for the submission of data to support engineering assessments. These data requirements should be collaboratively defined with the cognizant competency and the IPT at the earliest possible phase of the program.

6. Action. The implementation of the above stated policies is a TEAM responsibility. This action is part of the normal flight clearance process described in reference (b). The process participants and their responsibilities are:

a. IPT Leads shall ensure that the applicable policies authorized in this instruction are identified, if appropriate, and addressed at the earliest possible point in a program/project.

b. IPTs shall:

(1) ensure that airworthiness standards are considered in all procurement actions including those associated with S&T, prototypes, COTS equipment, etc;

(2) conduct planning and coordination meetings with those engineering competencies identified as reviewing the flight clearance requests; and

(3) provide data and information to facilitate the engineering airworthiness assessment. Data and information shall include:

- (a) design data and performance data for the overall flight configuration;
- (b) program cost and schedules constraints and other program drivers prompting the need for airworthiness standards deviation;
- (c) flight safety risk mitigation options; and
- (d) other data required to support the engineering analysis.

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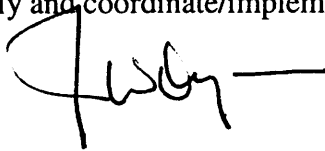
(4) in coordination with the appropriate Research and Engineering competencies, document the airworthiness tailoring decisions and basis, and include in the test and configuration management documentation.

c. Research and Engineering (AIR-4.0) and Test and Evaluation (AIR-5.0) Competencies shall:

(1) identify for the IPT the individual(s) empowered to tailor application of established airworthiness standards; and

(2) tailor the application of airworthiness standards for special purpose systems as appropriate during the flight clearance process. Document any tailoring decisions and basis in pertinent test and configuration management documentation.

7. Review. The Head, Systems Engineering (AIR-4.1), as the systems engineering process owner, shall review this instruction annually and coordinate/implement updates and changes as appropriate.



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